NODC Data, Services and It's New Geoportal Server

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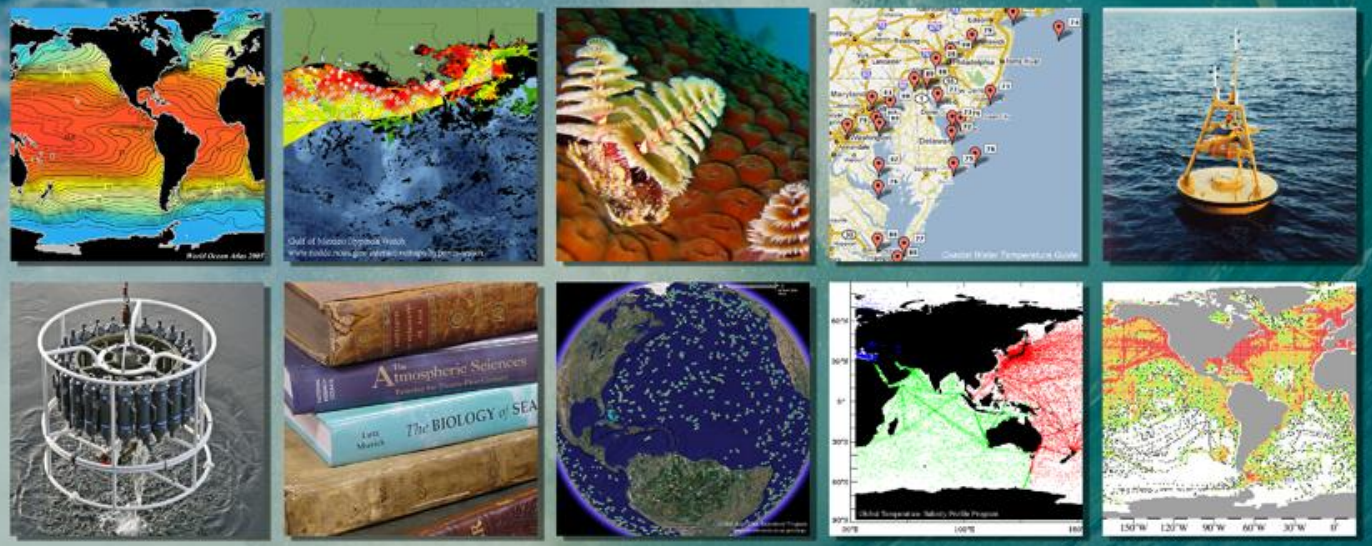
Overview

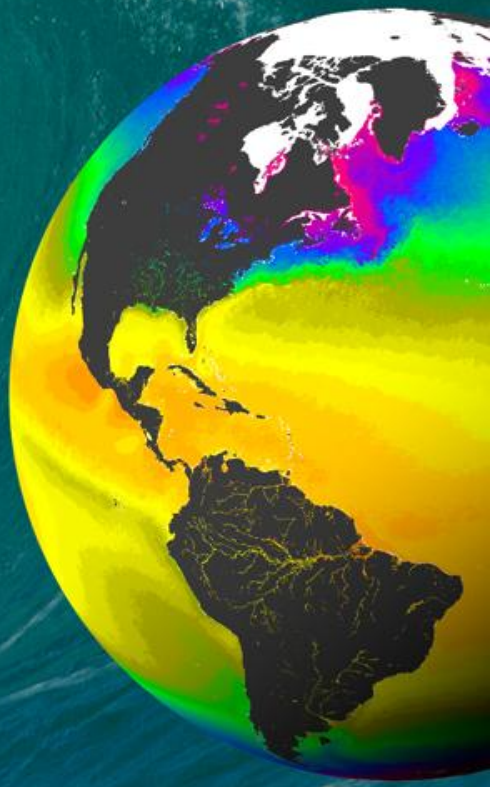
- **NODC's Data and Services**
  - NODC's Mission-scientific stewardship
  - Archive Paradigm
  - Bring Geoportal Server to NODC
- **An overview of NODC's Geoportal Server:**
  - Implementation highlights: multiple service links; temporal search, spatial search, improved browse tree, ocean basemap, and ocean locator demo
- **More from NODC's Geoportal Server**
  - Human to machine
  - machine to machine
  - Bringing it all together
- **Usability test results and future implementation plan**

NODC's Data and Services

NOAA National Oceanographic Data Center

An Ocean of Data and Information...





Mission: To provide scientific stewardship of national and international marine environmental and ecosystem data and information

Scientific Stewardship

- **Acquire**: receive ocean data from U.S. and foreign sources
- **Archive**: preserve those data assets for the long term
- **Access**: provide access to archived data for business, federal, science, and many other users
- **Add Value**: assemble easy-to-use, long term collections for science and applications

NODC *Archive* Paradigm

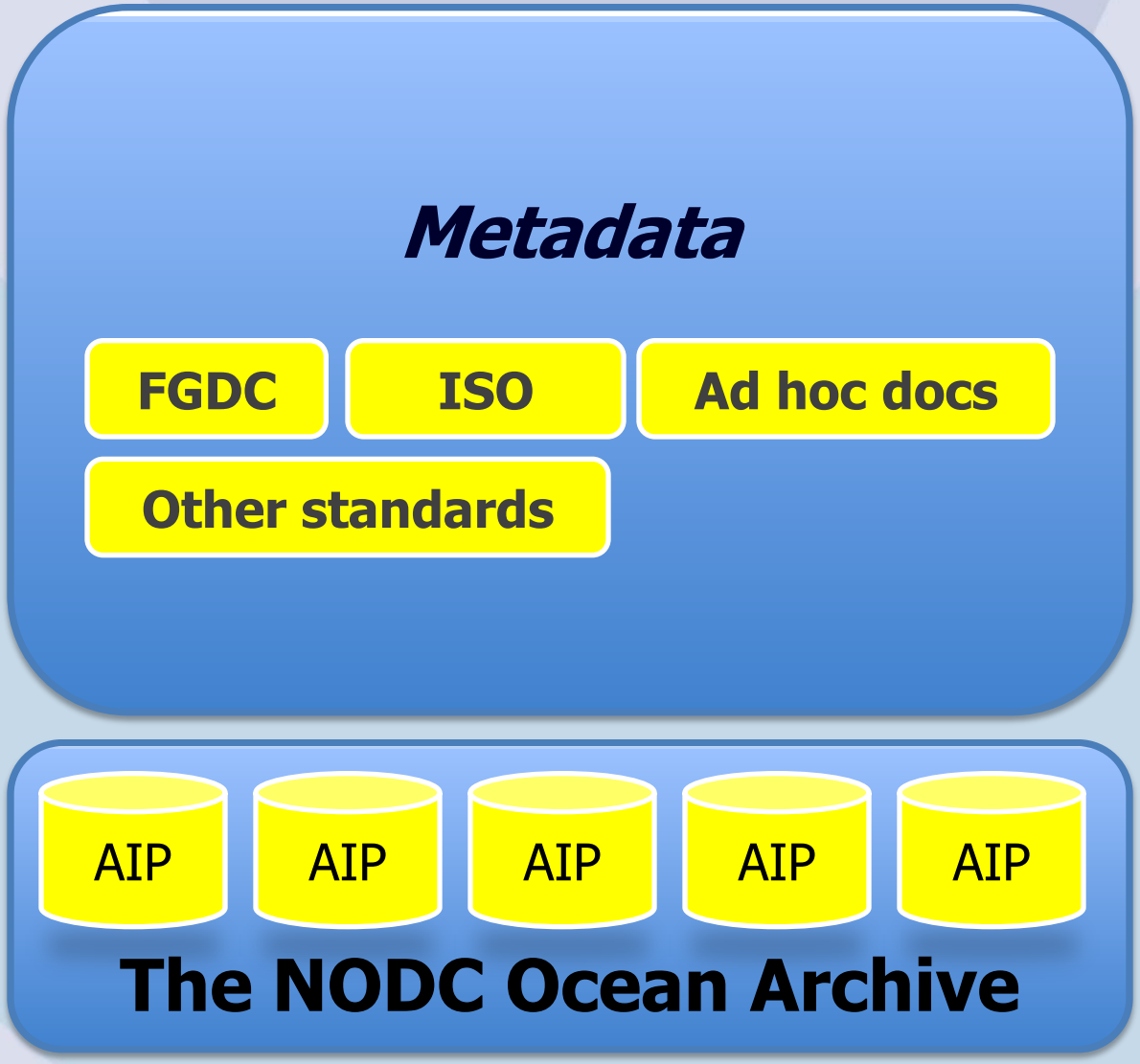
Human and machine interfaces to

Understand, Preserve, Discover, Access,* and *Use

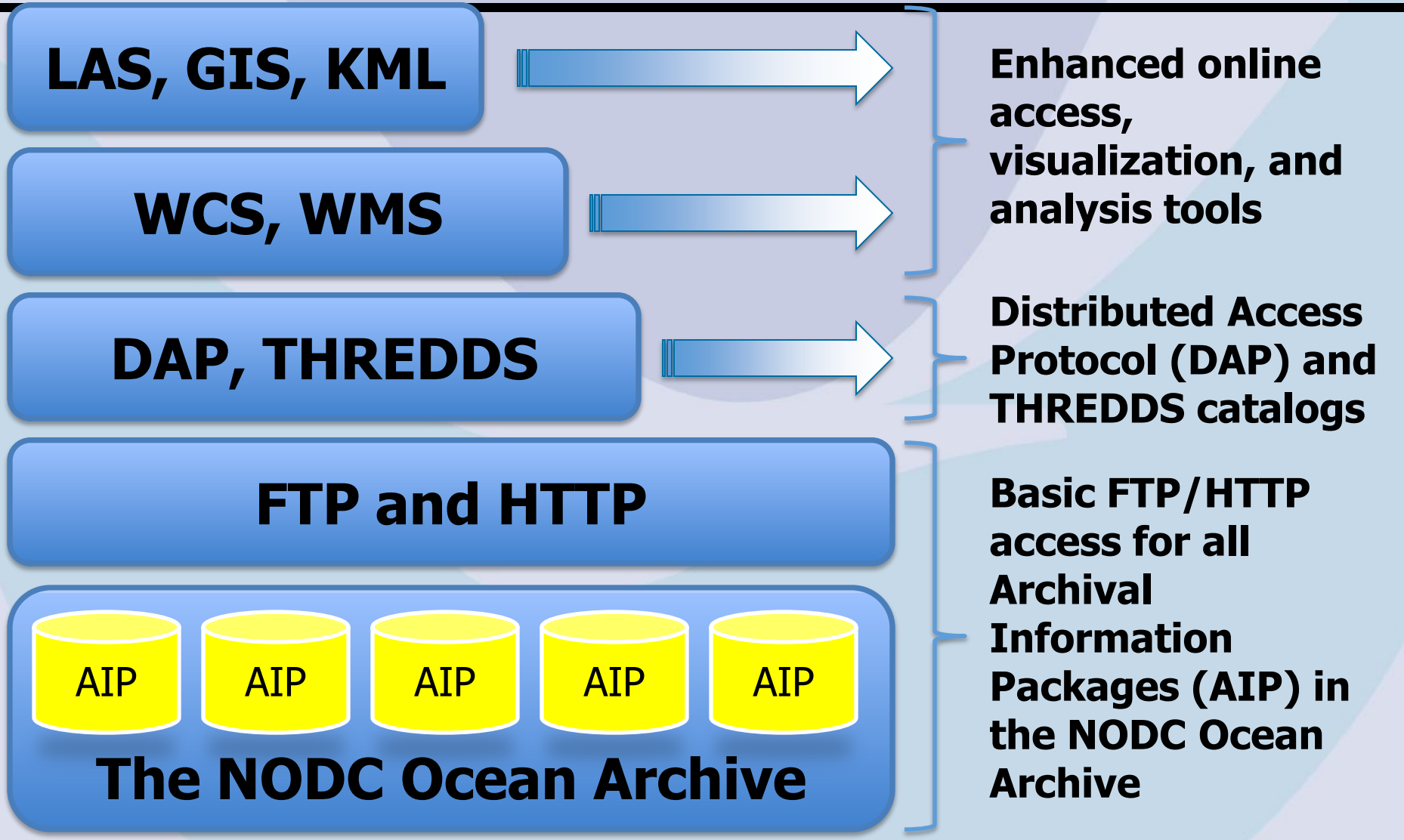
NODC Archive Holdings

The NODC Ocean Archive

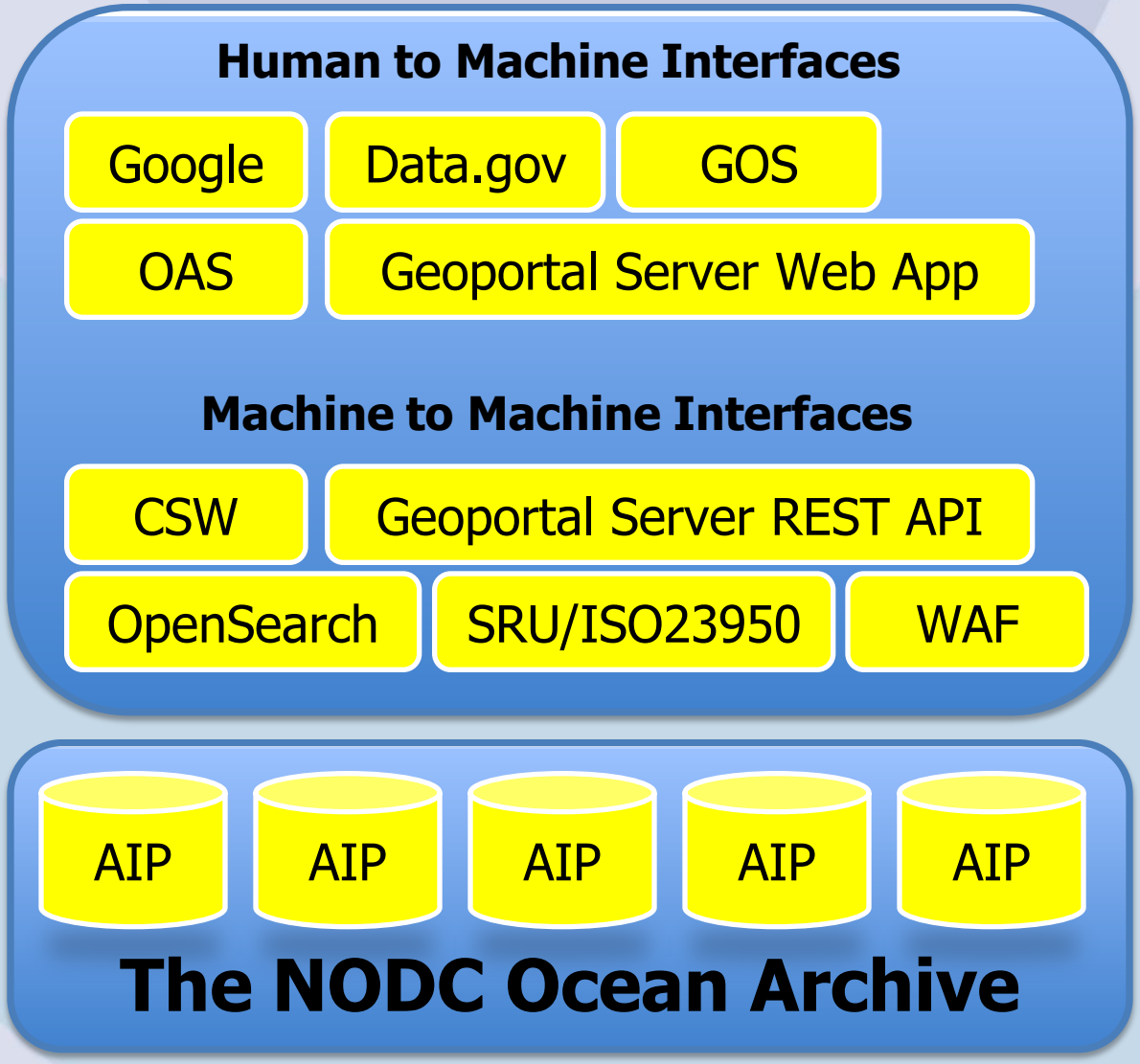
Understand and Preserve



Access and Use



Discovery


Human to Machine Interfaces
Google
Data.gov
GOS
OAS
Geoportal Server Web App
Machine to Machine Interfaces
CSW
Geoportal Server REST API
OpenSearch
SRU/ISO23950
WAF
AIP
AIP
AIP
AIP
AIP
The NODC Ocean Archive

An Overview of NODC's Geoportal Server

Highlights from NODC's Geoportal Implementations

- Multiple service links
- Temporal search
- Browse by keywords
- NODC's ocean locator
- NODC's ocean basemap
- Demo

Geoportal Server-Web interface

NOAA NATIONAL OCEANOGRAPHIC DATA CENTER (NODC)
UNITED STATES DEPARTMENT OF COMMERCE

NODC HOME | SEARCH | BROWSE | SEARCH TIPS

Search

Search metadata content, e.g. title:SST; use "AND" for multiple keywords, e.g. water AND temperature; use "" to search for an exact phrase, e.g."water temperature"

(Search tips!)

sst AND ODYSSEA Search Clear All

Additional Options

WHEN

Dates overlap range Dates within range

From: ... (yyyymmdd)

To: ... (yyyymmdd)

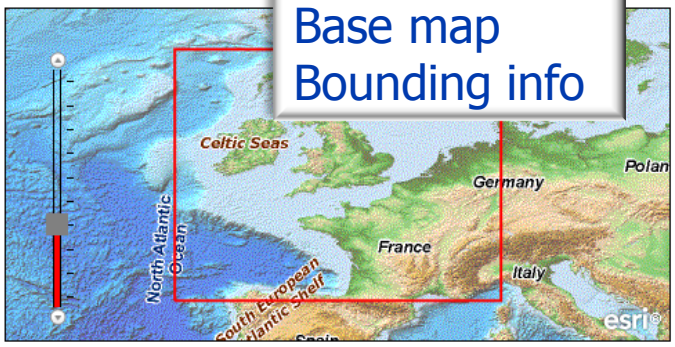
WHERE

Zoom the map to desired area by double-clicking on the location, or shift-click-dragging a bounding box, and choose "intersecting" or "fully within"

Anywhere Intersecting

Free Text, Temporal, Spatial, Search

Ocean Locator Base map Bounding info



Results 1-1 of 1 record(s)

Expand results Zoom To Results Zoom To Search

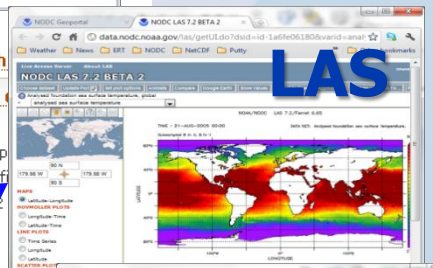
Analysed L4 foundation sea surface temperature
North-Western European shelves data

The ODYSSEA North-West Europe Shelves Sea Surface Temp
produced at Ifremer/CERSAT. It provides a daily cloud-free f
foundation sea surface temperature at 2 km resolution (
It is generated by me...

Website Details Metadata Download LAS TDS
OPeNDAP FTP Zoom To

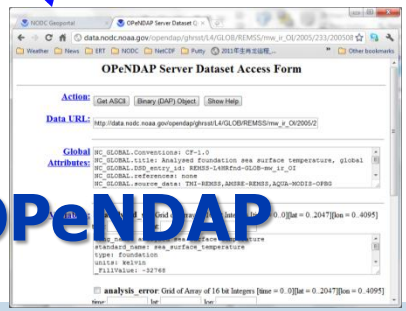
See results through REST API: GEORSS ATOM HTML FRAGMENT KML JSON

HTTP

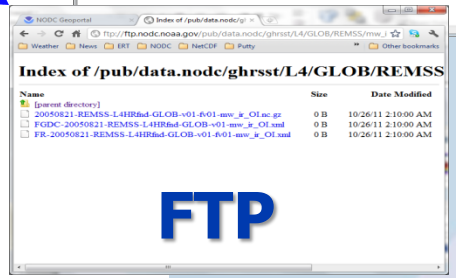


LAS

TDS

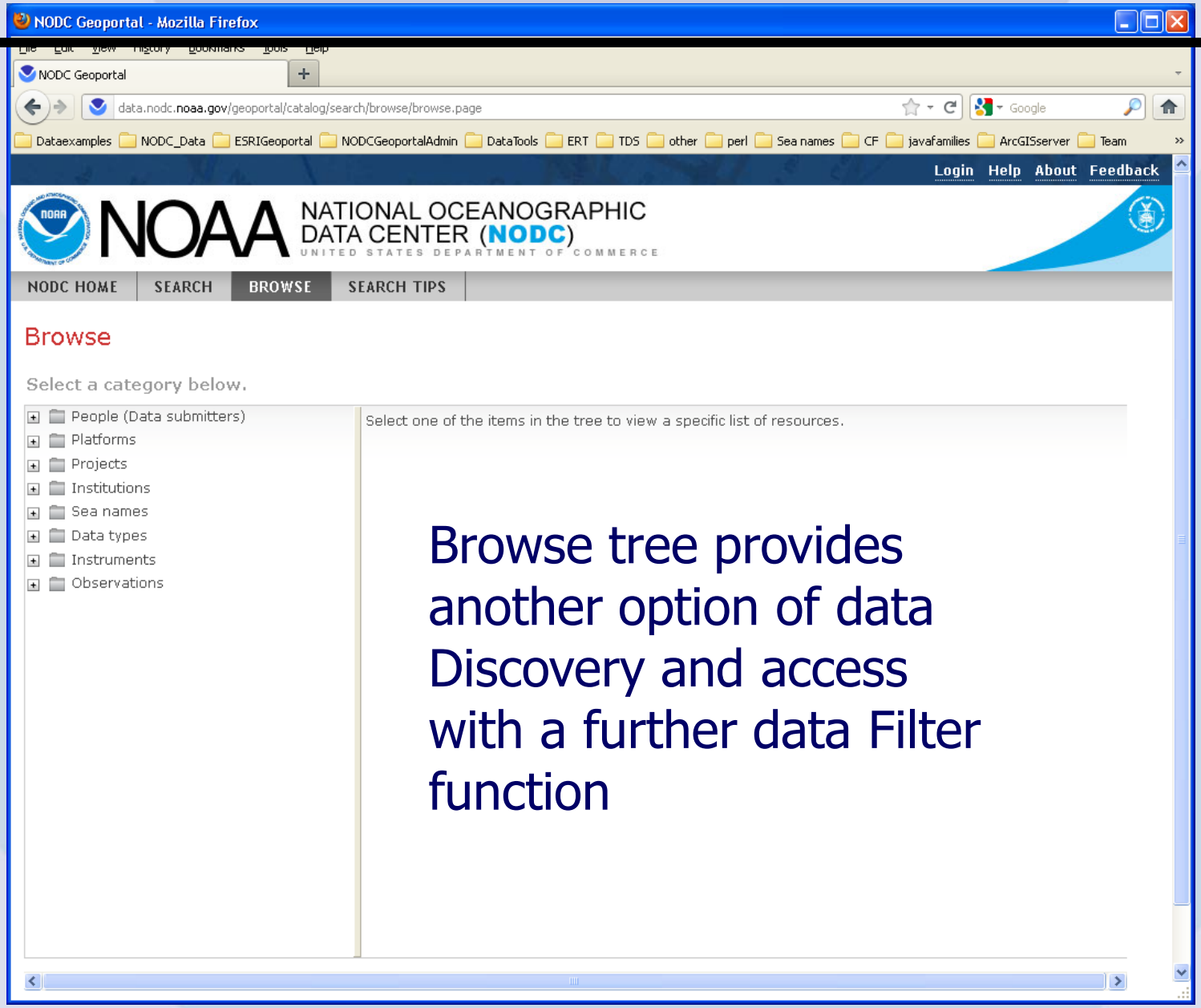


OPeNDAP



FTP

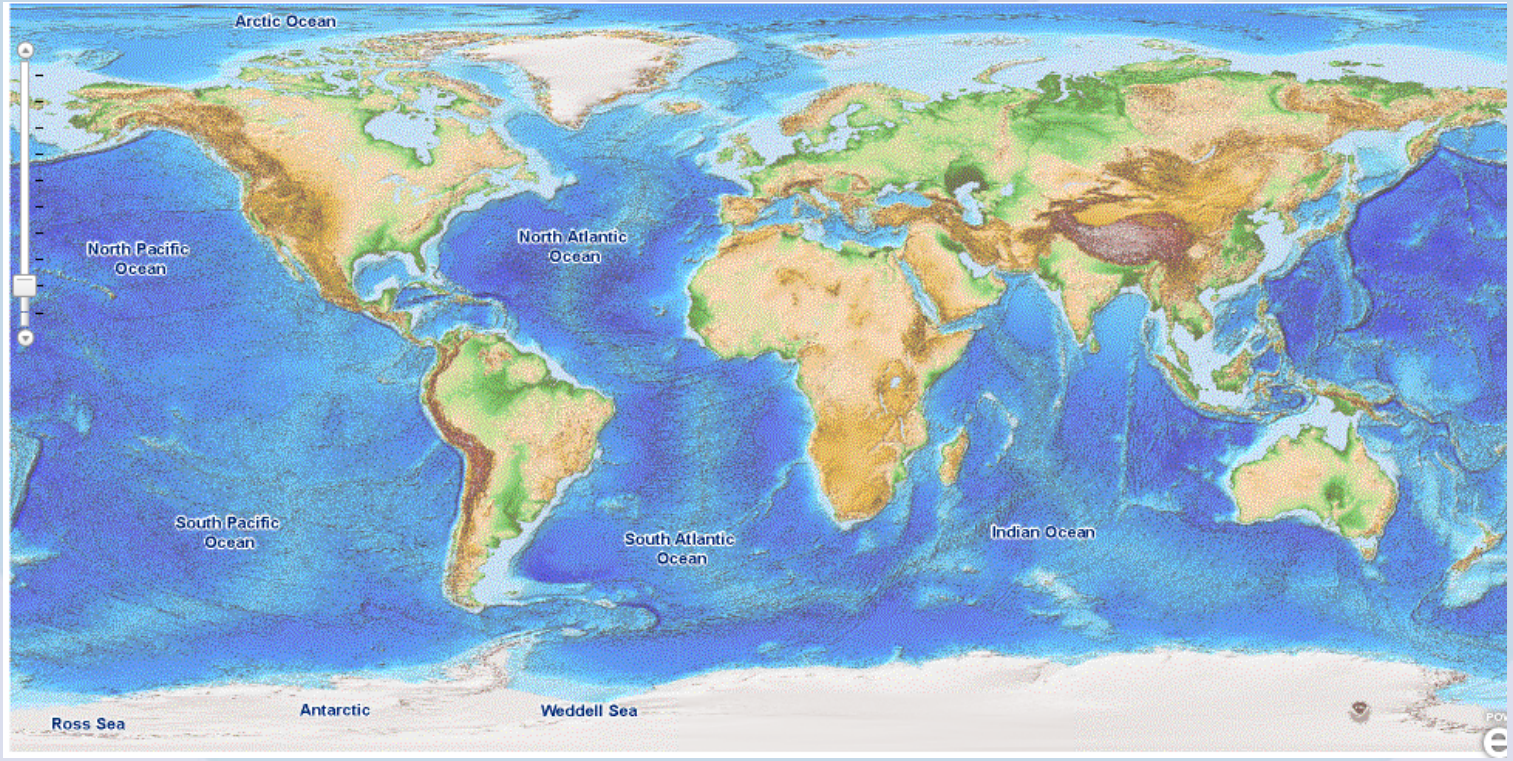
Geoportal Server Discover via Browse



Browse tree provides another option of data Discovery and access with a further data Filter function

NODC Ocean Basemap

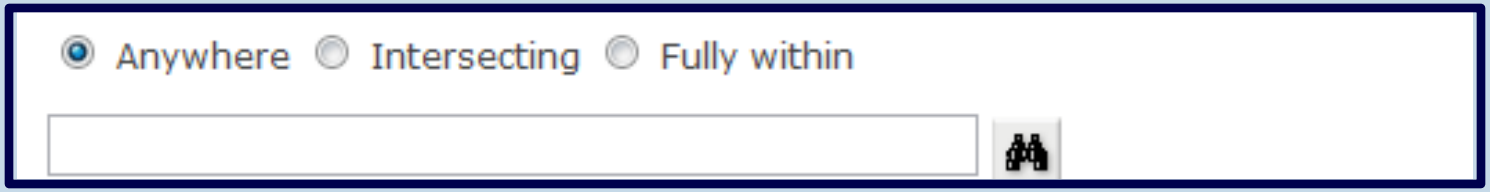
The original data layers include NGDC's EOTOPO1 (NGDC), NODC's Sea area and National Marine Sanctuaries map (VLIMAR and NODC), Large Marine Ecosystems map (NOAA LME), Global countries, states/provinces, and cities polygons (ESRI 2004), Marine Eco-regions of the World, the Exclusive Economic Zone (EEZ) boundaries (Conservation International). http://data.nodc.noaa.gov/arcgis/rest/services/basemap8/MapServer?f=jsapi



NODC Ocean Locator

The original data layers include NODC's Sea area and National Marine Sanctuaries map (VLIMAR and NODC), Coral Reef location map (NOAA CoRIS Team, the original GIS map was achieved from ReefBase), Large Marine Ecosystems map (NOAA LME), Global countries, states/provinces, and cities polygons (ESRI 2004), Marine Eco-regions of the World (WWF), the Exclusive Economic Zone (EEZ) boundaries (Conservation International). The ocean locator is updated whenever a new sea area location is defined in NODC's Ocean Archive System or new data layers are requested by the users.

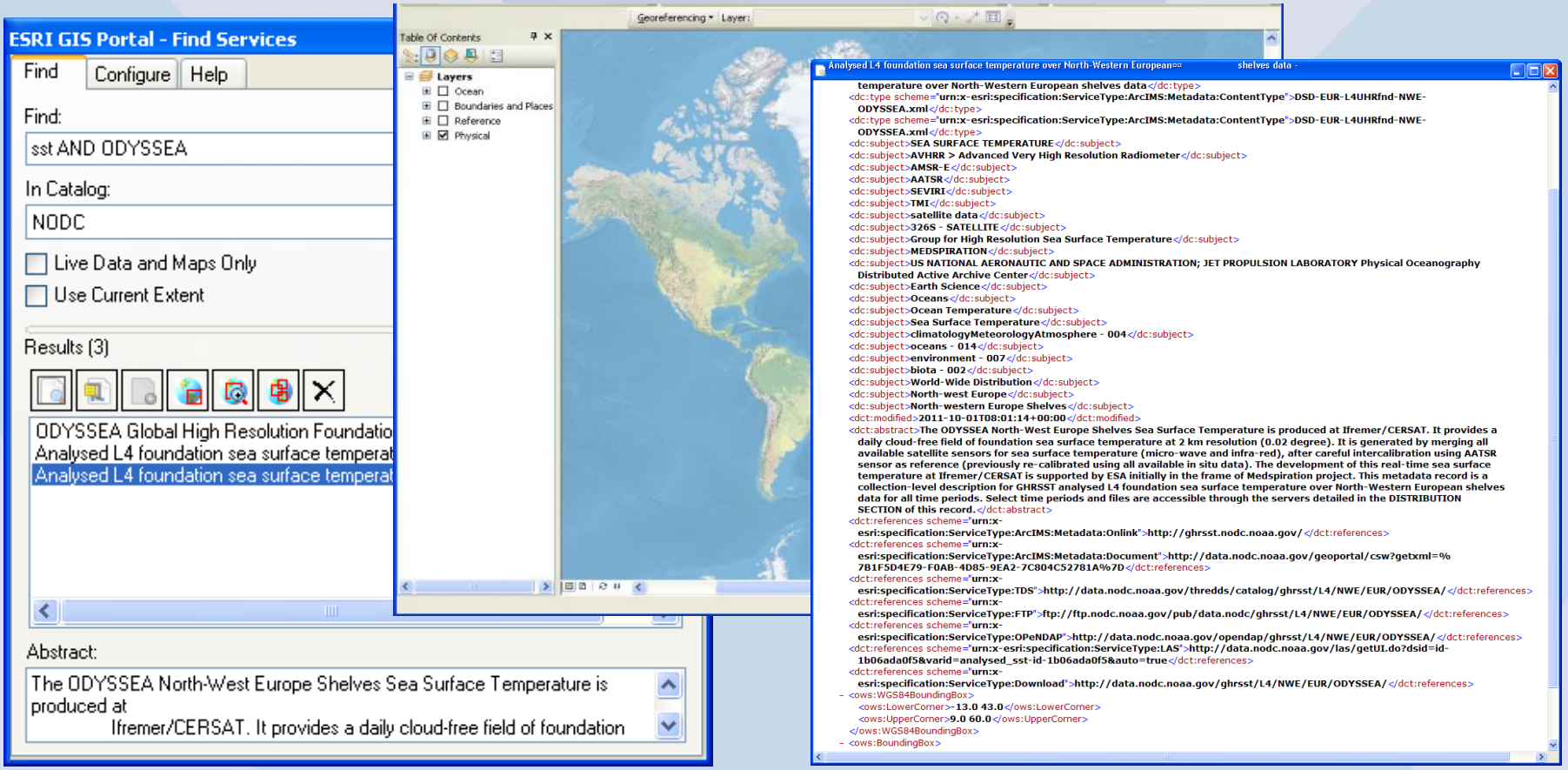
Data.nodc.noaa.gov/geoportal



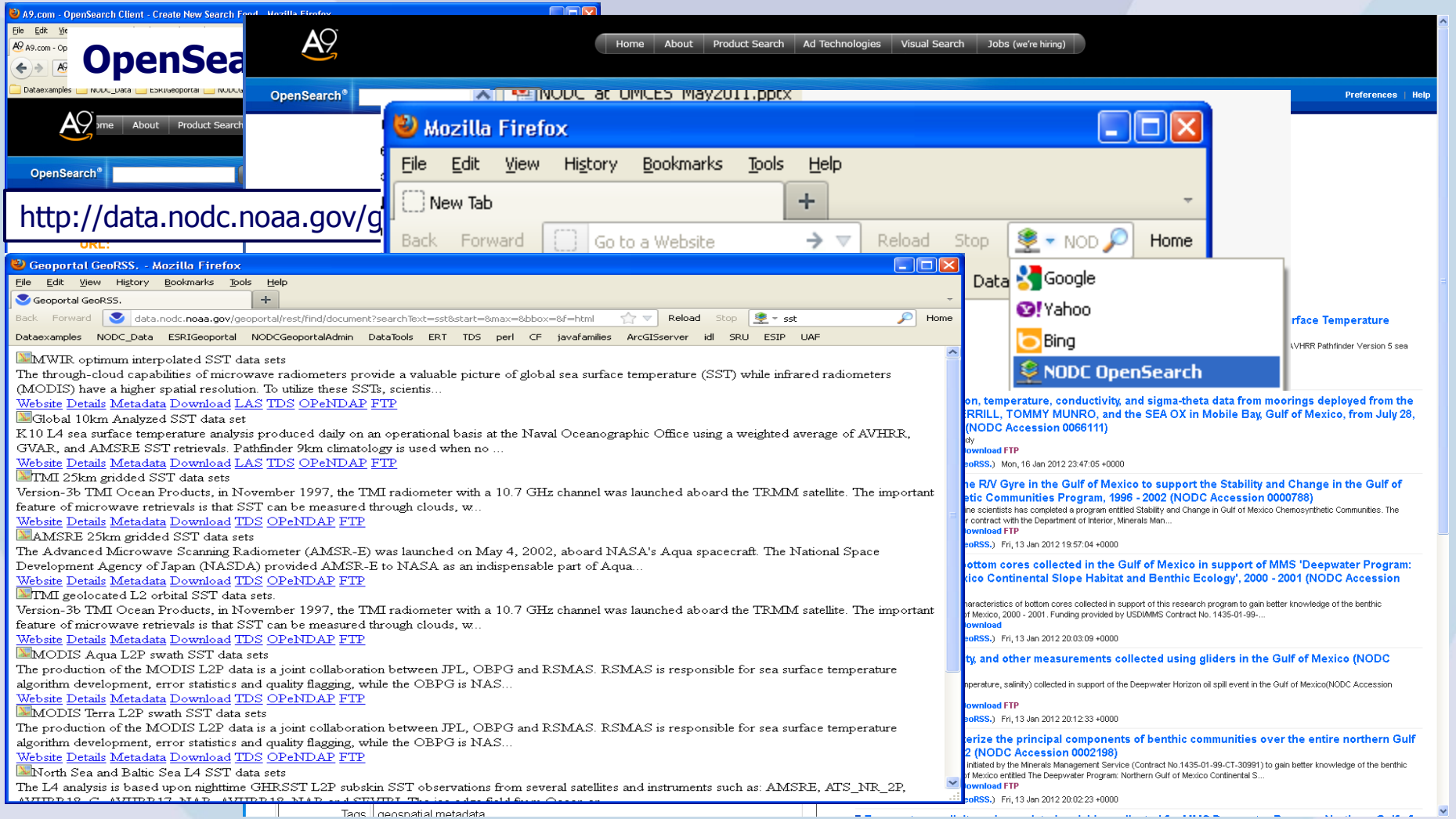
How NODC's Geoportal Server Enables Machine to Machine Search Capability and Brings all Together?

Machine to Machine- via CS/W

Example: A Search from Desktop-Arcmap>CSWclient returns the location of the data on the map and
A brief metadata file with selected metadata fields



Machine to Machine- OpenSearch



Geoportal Server –REST URL

- http://data.nodc.noaa.gov/geoportal/rest/find/document?searchText=+(Temperature)+(sdate: [1986 TO 1990]) + (edate:[1986 TO 1990]) &start=1&max=25&spatialRel=esriSpatialRelWithin&bbox=137.72,33.36,143.29,36.14&f=html
- "Show me in HTML format the first 25 datasets with the keyword *temperature*, between 1986 and 1990, within the bounding box 137.72 E to 143.29 E and 33.36 N to 36.14 N"
- Want it in KML? Change the "html" to "kml".

Geoportal Server Components

Usability Test Results and Future Implementation Plan

Usability Test Results- Background

ESRI's geoportal server was designed for users who have GIS background. NODC did many customizations to make the gpt server be easier to both GIS and non-GIS users. To evaluate the changes and get ideas for future implementations, we conducted usability test within a small group of data users.

Usability Test Results- Questions List

Query	Which part do you find difficult? 1. Free text; 2. Temporal search; 3.Spatial search; or any other comments
1. Water temperature, wave height data for Gulf of Mexico during the past 5 years	
2. Wind data from remote sensing for California coast	
3. Ocean current data for Chukchi Sea for a time period covering 2009 to present	
4. Station data from a NOAA cruise e.g. "Townsend Cromwell" from 1960s	
5. Can you find this data with the following information Place: Black Sea Institution: Woods Hole Oceanographic Institution (WHOI) Data collected: 2003	
6.Please define a search by yourself and provide a short description below: ☺	
Suggestions:	

The test queries were selected from real user requests to NODC. Normally when users could not figure out how to find the data, they send the requests to NODC's user services. The average time used for each test is between 15 to 45 minutes.

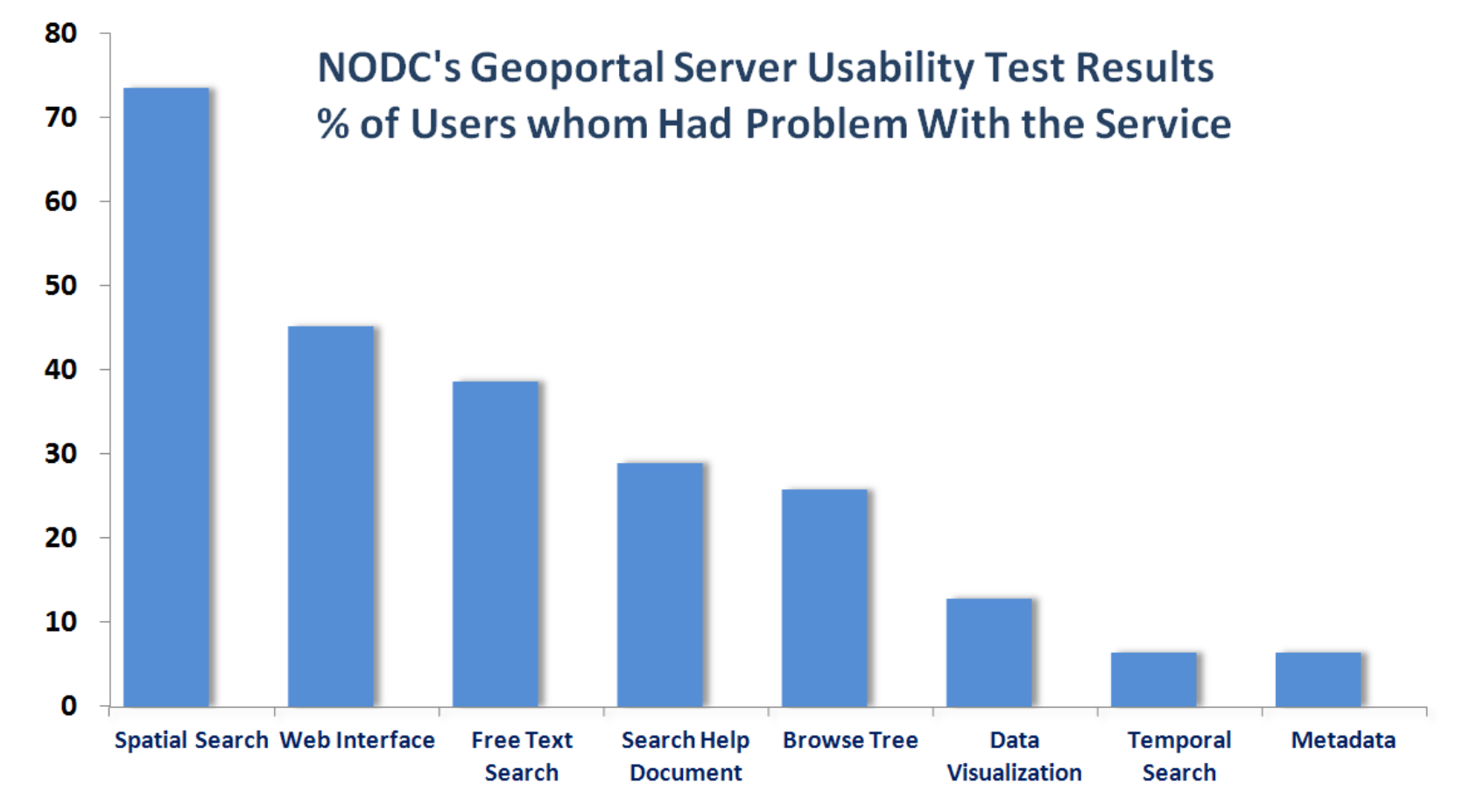
Usability Test Results- More About The Testers

32 out of 34 users provided their contact information; and 19 of them are willing to be in touch with us for future updates.

40% students
60% researcher/scientist
28% data management

Testers are from America, Asia, and Europe with good English or poor English skills

Usability Test Results



Future implementation plan

- Map locator: improve the map layout; make the locator work with automatic zoom
- Free text search: configure the search default syntax; add ontology service to Geoportal Server
- Web interface: distinguish between two ways of search; make the most popular REST APIs shown on top of the results list; others
- Data visualization: on-going
- ISO19115-2 metadata capability: on-going with ncISO (NGDC) metadata and ISO19115 metadata from the xsl (NCDDC) transformation

Acknowledgements

- Thank you to Christine White and her team at ESRI who continue to help us improve our Geoportal
- A big thank you to Jefferson Ogata, John Relph, Donald Collins, Andy Allegra, Kelly Logan, Matthew Austin

Thank You!